Space Weather Forecast

Issued on Thursday, 07 March 2024 at 13:18 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of G1/Minor Storms on day 2 and 3 (08-09 Mar) given likely faster solar wind arrival and possible glancing blow from a coronal mass ejection.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low solar activity throughout. There are eight sunspot regions on the visible disc, with one of the larger regions approaching the western limb. remains approaching centre disk continue to be the most magnetically complex, with continued slight development. The remaining regions small and generally stable.

Modelling ongoing for a CME from the southeast disk on the 05 Mar, this is currently expected to largely pass below Earth's orbit but may give a glancing blow later on day 2 (08 Mar).

Solar Wind / Geomagnetic Activity: Solar wind parameters were at slightly elevated to slow ambient levels around 380-440km/s. Total magnetic field strength has been weak throughout. The north-south component has also varied weakly. Geomagnetic activity was mostly quiet (Kp0-2) with a brief period of unsettled (Kp3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Expected to remain generally low with a slight chance of an isolated Moderate class flare.

Solar Wind / Geomagnetic Activity: A coronal mass ejection (CME), originating in the southeast disk on the 05 Mar, brings a risk of a glancing blow later on day 2 (08 Mar) or into early day 3 (09 Mar).

Otherwise the Earth is in a reasonably slow-ambient solar wind currently. Faster solar winds are forecast to connect with Earth sometime later into day 2 (08 Mar) and persist into day 3 (09 Mar), perhaps reaching elevated levels.

Generally Quiet to Unsettled geomagnetic activity is forecast to continue during day 1 (07 Mar), with a slight chance of Active intervals given the potential for residual glancing CME influence. Into day 2 (08 Mar) increasingly Unsettled conditions expected with Active intervals likely overnight into day 3 (09 Mar), with a chance of G1/Minor Storm intervals in association with the arrival of the faster winds combined with possible effects of the glancing CME from the 05 March, elevated conditions perhaps continuing into day 3 (09 Mar) before likely easing into day 4 (10 Mar).

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to persist at background levels.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	30	30	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	20	20	20	20
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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